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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,558	11/26/2002	Kenneth M. Williamson	440571/PALL	6695
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			EXAMINER	
			KIM, SUN U	
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			1723	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,558

Applicant(s)

WILLIAMSON ET AL.

Examiner

John Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10,22-28 and 33-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10,22-28 and 33-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on 25 July, 2006.

Specification

1. The disclosure is objected to because of the following informalities: The second paragraph of Page 12 of the specification should be reviewed to correctly notate that the filter layer is 20 and drainage layers are 21 and 22 corresponding to Figure 2. Presently, the second paragraph of page 12 of the specification recites drainage and filter layer with same 21.

Appropriate correction is required.

Claim Objections

2. Claims 25-28 and 33 are objected to because of the following informalities: Recitation of "the first functional drainage layer" in claims 25-28 should be corrected to "the functional drainage layer". Recitation of "the functional drainage layer" in claim 33 should be corrected to "the first functional drainage layer". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 1, 4-10, 22-28, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pall (U.S. Patent No. 4,154,688) in view of Groeger et al (U.S. Patent No. 5,605,746).

Regarding Claim 1, Pall discloses a filter element comprising a pleated composite including a filter layer (#2) having first and second sides, and a first functional drainage layer (#6) disposed proximate the first side of the filter layer, the functional drainage layer and having a lower edgewise flow resistance than the filter layer (Col. 4, Lines 6-24), wherein the pleated composite has a plurality of pleats, each having first and second legs, the first leg contacting the second leg of the same pleat and the second leg of an adjacent pleat over a substantial portion of the height of the first leg and wherein the first functional drainage layer is positioned within the pleats to pass fluid in an edgewise direction through the first functional drainage layer along the first side of the filter layer, the fluid passes through the first functional drainage layer (Col. 4, Lines 12-24), and the filter layer is positioned within the pleats to pass fluid in a thickness direction through the filter layer and the filter layer filters fluid passing through the filter layer. Pall does not disclose a functional material. Groeger et al teach a filter element (42) comprising a pleated composite including a filter layer (46, 48) and a first functional drainage layer (45) comprising a functional material (50) proximate its outer/first side of the filter layer (46) to remove mildew, mildew odor, microorganisms from fluid (see col. 5, line 45 – col. 6, line 31; col. 8, line 64 – col. 9, line 35; col. 10, lines 13-33). It would have been obvious to a person of

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ordinary skill in the art at the time the invention was made to modify the first drainage layer of Pall to include functional material of Groeger et al to provide an improved filter element having the ability not only to effectively filter fluids but also remove undesirable contaminants of fluid such as residual chlorine and other impurities such as mildew, mildew odors and microorganisms from fluid to give a cleaner and safer fluid for consumption.

Regarding Claim 4, Pall discloses that the first leg contacts the second leg of the same pleat and the second leg of an adjoining pleat over a substantially continuous region extending for a substantial portion of the height of the first leg and over at least 50 percent of an axial length of the filter element (Fig. 3).

Regarding Claim 5, Pall discloses that the pleated filter element includes a second drainage layer (#5) disposed on the second side of the filter layer and also having a lower edgewise flow resistance than the filter layer (Col. 4, Lines 6-24). Pall does not disclose a functional material in the second drainage layer. Groeger et al teach a filter element (42) comprising a pleated composite including a filter layer (46, 48) and a first functional drainage layer (45) comprising a functional material (50) proximate its outer/first side of the filter layer (46) and a second functional drainage layer (47) comprising a functional material (54) to remove mildew, mildew odor, microorganisms from fluid (see col. 5, line 45 – col. 6, line 31; col. 8, line 64 – col. 9, line 35; col. 10, lines 13-33). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the second drainage layer of Pall to include functional material of Groeger et al to provide an improved filter element having the ability not only to effectively filter fluids but also remove undesirable contaminants of fluid such

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as residual chlorine and other impurities such as mildew, mildew odors and microorganisms from fluid to give a cleaner and safer fluid for consumption.

Regarding Claim 6, Pall does not disclose a porous fibrous sheet containing the functional material. Groeger et al disclose that the first functional drainage layer (45) comprises a porous fibrous sheet containing the functional material (see col. 8, line 64 – col. 9, line 16; col. 5, line 45 – col. 6, line 12). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the first drainage layer of Pall to include a porous fibrous sheet containing the functional material of Groeger et al to provide an improved filter element having the ability not only to effectively filter fluids but also remove undesirable contaminants of fluid such as residual chlorine and other impurities such as mildew, mildew odors and microorganisms from fluid to give a cleaner and safer fluid for consumption.

Regarding Claim 7, Pall discloses that the first functional drainage layer contacts the filter layer (Fig. 1).

Regarding Claim 8, Pall discloses that the filter element is cylindrical (Fig. 3).

Regarding Claim 9, Pall discloses that the plurality of pleats each have a radially outer end displaced in a circumferential direction of the filter element with respect to a radially inner end of the pleat (Fig. 1).

Regarding Claim 10, Pall discloses that the pleats are substantially parallel to each other (Fig. 3).

Regarding Claim 22, Pall discloses a method of treating a fluid comprising: passing a fluid in a thickness direction through a filter layer (Col. 8, Lines 18-20) and in an edgewise direction through a drainage layer along a first side of the filter layer of a pleated filter composite

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to filter the fluid in the filter layer (Col. 8, Lines 54-59) and to pass fluid through the functional drainage layer. Pall does not disclose the use of a functional material. Groeger et al teach a method of using a filter element (42) comprising a pleated composite including a filter layer (46, 48) and a first functional drainage layer (45) comprising a functional material (50) proximate its outer/first side of the filter layer (46) to remove mildew, mildew odor, microorganisms from fluid (see col. 5, line 45 – col. 6, line 31; col. 8, line 64 – col. 9, line 35; col. 10, lines 13-33). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Pall to include functional material of Groeger et al in the first drainage layer of Pall to not only effectively filter fluids by filter layer but also remove undesirable contaminants of fluid such as residual chlorine and other impurities such as mildew, mildew odors and microorganisms from fluid to give a cleaner and safer fluid for consumption.

Regarding Claim 23, Pall discloses passing the fluid through a second drainage layer disposed along a second side of the filter layer (Col. 8, Lines 54-59).

Regarding Claim 24, Pall discloses passing the fluid in an axial direction of the pleated filter between opposite lengthwise ends thereof (Col. 8, Lines 54-59).

Regarding Claim 25, Pall discloses that passing the fluid edgewise through the first functional drainage layer includes passing the fluid edgewise through the first functional drainage layer includes passing the fluid primarily in an axial direction of the filter element edgewise through the first functional drainage layer (Col. 8, Lines 54-59).

Regarding Claim 26, Pall discloses that passing the fluid edgewise through the first functional drainage layer includes passing the fluid primarily in an axial direction of the filter

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element edgewise through the first functional drainage layer primarily along a height of the pleats (Col. 8, Lines 54-59).

Regarding Claim 27, Pall discloses that passing the fluid edgewise through the first functional drainage layer includes passing the fluid edgewise direction through the first functional drainage layer to the root of the pleats (Col. 8, Lines 54-59).

Regarding Claim 28, Pall discloses that passing the fluid edgewise through the first functional drainage layer includes passing the fluid edgewise (Col. 8, Lines 54-59).

Regarding Claim 33, Pall discloses that the functional drainage layer is coarser than the filter layer and performs substantially no removal of particles from the fluid (Col. 4, Line 12-24).

Regarding Claim 34, Pall discloses that the fluid passes edgewise through the functional drainage layer before passing in a thickness direction through the filter (Col. 8, Lines 18-20).

Regarding Claim 35, Pall discloses that the fluid passes in a thickness direction through the filter before passing edgewise through the functional drainage layer (Col. 8, Lines 18-20).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pall in view of Groeger et al as applied to claim 1 above and further in view of Karachevtcev et al (U.S. Patent No. 5,988,400).

Regarding Claim 3, Pall in view of Groeger et al discloses the functional drainage layer has an edgewise flow resistance that is lower than that of the filter layer (Col. 4, Lines 6-24) but does not disclose that the resistance is at most approximately 50% that of the filter layer.

Karachevtcev et al teach a filter element having filter layers with a difference in flow resistance that is at most approximately 50% (Col. 6, Lines 3-10) wherein pore size of prefilter i.e. drainage layer is from 0.25 to 0.65 microns and the pore size of a second membrane i.e. filter layer has

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pore size of 0.15 to 0.45 microns . Since the pore sizes of the drainage layer and filter layer have a difference of less than 50% the flow resistance will be less than 50% as well. One of skill in the art would by routine experimentation find the optimum flow resistance. It would have been obvious to one of skill in the art to make the flow resistances of Pall as so desired or required, including as claimed to optimize filtration.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 3-10, 22-28, and 33-35 have been considered but are moot in view of the new ground(s) of rejection.

Pall in view of Groeger et al and Karachevtcev teaches the invention as claimed.


Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is 571-272-1142. The examiner can normally be reached on Monday-Friday 7 a.m. - 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Kim can be reached on 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


John Kim
Primary Examiner
Art Unit 1723

JK
September 21, 2006